

METHOD FOR MANAGING DEVICE BEHAVIOR DURING INCREASED LOAD OR CONGESTION USING POLICIES

TECHNOLOGICAL FIELD

[0001] An example embodiment of the invention relates generally to wireless communication technology and more particularly, relates to a method, apparatus, and computer program product for enabling provision of one or more policies to manage traffic in communications systems.

BACKGROUND

[0002] The modern communications era has brought about a tremendous expansion of wireline and wireless networks. Computer networks, television networks, and telephony networks are experiencing an unprecedented technological expansion, fueled by consumer demand. Wireless and mobile networking technologies have addressed related consumer demands, while providing more flexibility and immediacy of information transfer.

[0003] Current and future networking technologies continue to facilitate ease of information transfer and convenience to users. Due to the now ubiquitous nature of electronic communication devices, people of all ages and education levels are utilizing electronic devices to communicate with other individuals or contacts, receive services and/or share information, media and other content. One area in which there is a demand to increase ease of information transfer relates to management of traffic in networks.

[0004] Due to the exponential growth of the wireless data use, the industry has started to develop mechanisms for better managing the growth of traffic in networks. Part of the development efforts are aimed at making the use of existing assets more efficient, thus allowing better return on investments. At present, many mobile network operators are increasingly planning the manner in which to use their cellular network assets and other complementary wireless network assets most efficiently to maximize the use of network assets and minimize costs.

[0005] Currently, many mobile operators may have a multitude of wireless access networks available in different geographical locations. The manner in which to utilize the wireless network assets is typically part of a mobile operator's overall strategy for using their resources efficiently while at the same time offering the expected quality of service for their customers, the end users. An existing challenge typically involves making the end user devices behave in a deterministic way that also follows the mobile operator's strategy for wireless network use.

[0006] At present, when the wireless network gets congested, the devices of end users typically experience a degradation of service. The devices may attempt to request access to the network to get new bearers established or bearer bit rates increased for new demand. However, due to increased load in the network, the network generally does not accept such requests, but instead rejects the requests. In other words, the network may reject requests that may not be accommodated when congestion gets severe and the network may begin barring some devices from accessing the network. As a drawback, the end users of the devices may become disappointed in the low quality of experience that results from the manner in which the congested network behaves.

[0007] In view of the foregoing drawbacks, it may be beneficial to provide a more efficient and reliable mechanism of enabling management of congestion in one or more wireless networks.

BRIEF SUMMARY

[0008] A method, apparatus and computer program product are therefore provided for enabling provision of policies to efficiently manage congestion in communications systems. In this regard, an example embodiment may provide a framework that enables provision of a new and complementary approach to managing the congestion in a wireless network(s). The wireless network(s) may provide cellular access and/or non-cellular access (e.g., Wireless Local Area Network), or any other suitable network access. In this regard, an example embodiment may allow network operators (e.g., mobile network operators) to implement a strategy of using available wireless technologies in their portfolio. In an example embodiment, a network device of a network operator may provide a set of instructions (e.g., policy instructions) to one or more communication devices in the network. These instructions may guide the behavior of the communication devices under one or more defined special conditions including but not limited to, for example, an instance in which an increased load or congestion is detected in the network.

[0009] By utilizing one or more policies of a network operator, one or more communication devices may proactively adapt to congestion and any other special circumstances for which a network operator(s) has a policy in place, thus making network resources better for usage and minimizing end user irritation associated with blocking access to the network and/or services of the network as well as collapsing quality of service (QoS) in the network.

[0010] In this regard, a network operator may expect more deterministic and compliant behavior from the communication devices by enabling the communication devices to follow the planned strategy of a network operator(s) for any special circumstances. As such, an end user of a communication device(s) may achieve a better service experience in an instance in which actual service rejections and access barring by the network are avoided. In an example embodiment, an end user of a communication device(s) may achieve a better service experience in an instance in which the communication device(s) notifies the end user of the network congestion. By more efficiently handling traffic or congestion, an example embodiment may enable a number of active communication devices in a network to increase.

[0011] In one example embodiment, a method for enabling provision of one or more policies to manage behavior of one or more communications devices is provided. The method may include analyzing data of at least one policy. The data of the policy includes information instructing one or more communication devices regarding a manner in which to behave according to one or more designated network conditions as designated by a network operator. The method may further include applying the policy in response to detecting that a load of a network is increased or that the network is congested. The method may further include enabling behavior in the manner designated by the network operator according to the applied policy in response to detecting the increased load or that the network is congested to minimize a congestion in the network.

[0012] In another example embodiment, an apparatus for enabling provision of one or more policies to manage behav-